MAY, MDCCCLV.

THE ZOOLOGIST:

A

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OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

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ENTOMOLOGICAL SOCIETY.

AN ADDRESS delivered at the ANNIVERSARY MEETING of t ENTOMOLOGICAL SOCIETY OF LONDON, on Monday, January 22nd. By EDWA NEWMAN, President.

*** This Address has been divided into Chapters for the convenience of referen and reprinted with Title-page and Wrapper. *Price One Shilling.*

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TO COLLECTORS OF BRITISH FERNS.

A SERIES of FIGURES of BRITISH FERNS, Photograph from Nature, are now preparing, and will be ready for Sale in a few we The specimens will all be selected by Mr. Newman, and the impressions taken b Lady who is perfect mistress of the Art: the name used by Sir J. E. Smith, Sir W Hooker, Mr. Babington and Mr. Newman will be printed on each plate. No scien work approaching this in beauty or accuracy has ever been submitted to the public.

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This day is Published, in one Folio Sheet, an entirely New Edition of t

ZOOLOGIST LIST OF BIRDS observed in GREAT BRITA and IRELAND, to be used for Labels, and also to facilitate the Exchang Birds and Eggs: it is brought up to the end of 1854, contains Latin as well as Eng Names, and is arranged in accordance with the Second Edition of Yarrell's 'Br Birds.' Price 4d. *printed on one side only for Labels*, or 6d. *by Post.* Price 2d. pri on both sides, or 3d. by Post.

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BRITISH EGGS AND BIRDS FOR SALE.

MR. SAMUEL STEVENS, Natural-History Agent, 24, Bloomsb Street, Bedford Square, begs to announce that he has received from Gree the following SCARCE EGGS for Sale:—Jer Falcon, £1 5s.; Whitetailed Eagle, Iceland Gull, 8s.; Glaucous Gull, 5s.; Kittiwake, 2s.; Purple Sandpiper, 8s.; M Redpole, 2s.; Lapland Bunting, 2s.; King Duck, 10s.; Harlequin Duck, 5s.; Longt Duck, 2s. 6d.; Little Auk, 10s.; Redthroated Diver, 3s.; Buffon's Skua, 2s. 6d.; others: also the Birds for Sale of many of the above. From North America:—O (*fine*) 11s.; Spotted Sandpiper, 4s.; Virginian Colin, 2s.; Redwinged Starling, American Cuckoo (*true*), 7s. From Madeira:—Bulwer's Petrel, 3s.; Great Shearw 12s. All the foregoing are authentic and mostly fine.

It is, no doubt, well known,' says Mr. Muskett, '*that the common toad will sit*
t the entrance of the hive and devour the bees one after another as they come within reach
f his tongue; but a rather singular circumstance occurred a few days since in this
eighbourhood; it was witnessed by my brother, and I can vouch for the fact: during
e late severe weather, happening to be occupied in the garden, he heard a tapping
oise in the direction of the bee-house, and on directing his attention to the spot,
bserved a woodpecker (*Picus viridis*) drop down on the block and devour the bees as
st as they made their appearance. My brother had previously noticed that the bees
iminished in number, and could not account for it: on examining the hive he
und the mortar had been pecked away, so that more light was admitted."

Mr. Westwood remarked that the fact that toads were enemies to bees was new
nd interesting, and he would take this opportunity to mention, as a circumstance that
ad come under his own observation, and one that he had not seen published, that the
ommon sparrows ate honey-bees with avidity, but only at a certain period of the year,
amely, in July, when they had young ones to provide for and there was a lack
their usual food.

On Greasiness in Insects.

Mr. Douglas read the following note:—

" In his Monograph of the Genus Depressaria, published in the 9th vol. of the
Linnæa Entomologica,' Professor Zeller, in a note under D. ultimella, says he could
ot distinguish the examples of that species received from Mr. Stainton, on account
the greasy condition of their bodies; and he further remarks, that the greater pre-
lence of greasiness in English collections, compared with those of Germany, is due
the use of camphor in English cabinets. I have heard this idea before, but esteemed
only as the dictum of an individual; for we often find certain species get greasy
en before they are removed from the setting-boards, and this remark applies
pecially to those Lepidoptera which, in their larva state, are internal feeders. In
e cabinet it is almost invariably internal feeders, both Lepidoptera and Coleoptera,
hich first become greasy. Yet it is perhaps worth while to ask some of our chemical
iends to tell us whether there is any foundation for the opinion that the odour of
mphor has any influence in developing greasiness in preserved specimens of insects.

" The Germans, I am informed, use quicksilver to keep away mites, and it might be
ked, in addition to the question just proposed, whether its presence in the insect-
awers has any influence in preventing the appearance of grease in the specimens.
s in Germany it is the practice to mount insects high up on the pins, there is no dif-
ulty in the use of quicksilver, but with us it would be far different, for, as the wings
our Lepidoptera touch the paper, the globules would roll over and destroy them,—
at is, if the method of placing it loose in the drawers, as used in Germany, were
opted.

" In France they appear to use no preservative at all, if we may judge from the con-
tion in which specimens of Lepidoptera have been returned to this country; and we
ow that the fine state of preservation of our collections has excited the admiration
French Lepidopterists.

" For the injury to insects by greasiness, camphine is an effectual remedy; simple
mersion therein, however, is not sufficient to prevent the recurrence of greasiness;
e specimens should remain in the spirit for several days.

BRITISH MUSEUM

"In old and neglected specimens the pins become quite corroded by verdigris: to prevent the occurrence of this, a method is used in Germany, of which I was informed by Mr. Dohrn: it consists in pushing the pin further through the insect than it is intended to remain, covering the portion immediately below the insect with a solution of gum arabic, and then drawing back the pin, which, by the coating it has received, is preserved from the action of the grease. The same principle has recently been applied in this country, by electro-plating the pins; and it is likely to be of use for those species in which the pin becomes corroded, and yet the grease does not much affect the insect: but the expense of these pins will prevent their general adoption."

Mr. Edward Sheppard said he had found the use of electro-plated pins check the growth of verdigris in greasy insects.

Mr. Edwin Shepherd said he had tried pins doubly-gilt, and yet in some instances he found they were acted on by the grease of the insects. He thought that when the bodies of insects rested on the paper they were more liable to become greasy than when the insect was elevated on the pin, as in the continental method.

Mr. Waterhouse said one great cause of greasiness was the placing insects in the cabinet soon after they were captured.

The President said that in the continental cabinets, where quicksilver was used, it was confined to grooves in the bottom of the drawers.

Captain Cox said that so long as he kept his insects in London none of them were greasy, but having removed them into the country, near to a running stream, forty or fifty of them have become greasy, and this effect he attributed to the moisture of the atmosphere of the place.

Mr. Janson read the following two notes by Dr. H. Schaum, of Berlin.

On Heterorrhina bicostata, Westwood.

"Mr. Westwood has lately given, in the 'Transactions' of this Society, New Series, iii. p. 66, some details and a drawing of an African Heterorrhina, which he considers to be the H. bicostata, published by me in the fifth volume of the 'Transactions,' p. 65. He asserts that the unique specimen described by me, is in Captain Parry's collection, and that his drawing had been taken from that specimen.

"I beg to state that this assertion is not correct, but that my specimen was from the cabinet of the late Mr. Melly (as indicated by me l. c. p. 65), and is now in the possession of his son. I mention this, because a comparison of Mr. Westwood's figure with my description leads me to the opinion that the H. bicostata of Mr. Westwood is specifically distinct from the insect published by me.

"The following differences seem to exist between the two insects: in the typical specimen of Heterorrhina bicostata of Schaum the thorax is unusually small; the mesosternal part of the sternal process short; the four posterior tibiæ deeply sulcated inside; while in the specimen figured by Mr. Westwood the thorax is of the usual size, the mesosternal process long, and the four posterior tibiæ without furrows on the inside. Furthermore, the anterior tibiæ are simple in Mr. Melly's specimen, while they are armed beyond the middle with a broad, though obtuse, tooth, in Captain Parry's insect. On this last difference I lay, however, but little stress, as it may arise from the two specimens belonging to different sexes. For, though Mr. Westwood designates his specimen as a male, I am inclined to draw from his own words the conclusion that it is a female. The presence of a tooth on the outside of the anterior tibiæ would itself be quite an anomalous character in a *male* of a green African Heterorrhina, and the indication, that the abdomen has "a *slight* oblong-oval *impression*," seems as little to support Mr. Westwood's opinion, for in all other species the abdomen of the male shows a *broad* and *deep furrow* along its middle.

"It might seem ludicrous for me to discuss the sex of an insect, which I have not seen, and I would certainly have refrained from doing so, if I had not compared in the Royal Museum, at Berlin, a specimen taken in Mosambique by Dr. Peters, which I suppose to be the male of Mr. Westwood's insect. It agrees well with the figure of the latter, except that it is considerably smaller, that the anterior tibiæ are unarmed, the tarsi longer, and the abdomen with a deep excavation in its middle. These are, however, differences, which, in the genus Heterorrhina distinguish the males from the females.

"If my supposition proves to be correct it will become necessary to bestow another name to Heterorrhina bicostata of Westwood.

Remarks on Mr. Curtis's recent Descriptions and Figures of British Elateridæ.

"The descriptions and figures of some British *Elateridæ*, published by Mr. Curtis in the 'Transactions' of this Society, New Series iii., p. 10, enable me to point out under what names most of these species have been described by continental authors.

"Ectinus? gagates, *Curt.*, is undoubtedly Ampedus lugens, of Redtenbacher and Germar, as stated already by Mr. Janson in the 'Entomologist's Annual' for 1855, p. 98.

"N. G.? punctolineatus, *Curt.*, is perhaps Ampedus scrofa, *Germ.*, though I have never seen a specimen of the latter which attains the size given by Mr. Curtis, and in which the smooth line down the centre of the thorax, mentioned by Mr. Curtis, is well marked.

"Elater nigrinus, *Curt.*, seems better to agree with Ampedus obsidianus and brunnicornis, *Germ.* (which are varieties of the same species as recognised by Germar himself) than with the true Amp. nigrinus, Payk., Gyll.

"Aplotarsus maritimus and Cardiophorus formosus, *Curt.*, are unknown to me. Should not the latter be regarded as a foreign insect accidentally introduced into England?

"Aplotarsus? cothurnatus, *Curt.*, is in all probability Ampedus subcarinatus, *Germ.*

"I take advantage of this opportunity to state that the Lathrobium carinatum, *Bold.* figured in the 'Entomologist's Annual,' is angusticolle, *Er.*"

Observations on British Elateridæ.

Mr. Janson also read some observations, by himself, on the British Elateridæ, alluded to by Dr. Schaum.

M. Henri Jekel communicated, through Mr. Waterhouse, the following

Note on Omias sulcifrons.

"A very interesting fact for the British Fauna should be the increase of a genus in the family Curculionidæ (though adding no new species), if sufficient generic differences were to be found.

"M. Jacquelin Du Val has shortly described and figured in his 'Genera des Coléoptères d'Europe,' page 13, plate 10, fig. 21 bis et 21 bis A, under the name of Barypeithes rufipes, an insect which is nothing but the Omias sulcifrons, *Sch.*, t. vii. pars 1, page 143, a species, as far as I am informed, only found, until the present time, in England, but now also pertaining to French-Britain's Fauna, the specimens in the collection of M. Chevrolat having been caught in the neighbourhood of Brest; no unusual fact, for I have received from M. de Leseliuc, who resides in the Department du Finestère, several species, which had been recorded as British only before his investigations. The national name of British is then not the only point of resemblance between the two countries.

"The value of M. Jacquelin Du Val's generic characters, as well as the place he gives to this insect (which, in my opinion, should be connected with Omias), I propose to discuss in my next note. I venture to say at present, that both the description and the figure do not permit one to recognise the insect, and I have to add that Boheman's description in Schönherr (loc. cit.) is perfect."

Entomological Botany (*with more especial reference to the Plants frequented by the Tineina*). By H. T. Stainton, Esq.

(Continued from page 4457).

Vitis vinifera. The Vine.

A sufficiency of this plant is grown in England, more especially in the South, where it ornaments the front of many a cottage, to render it worthy of notice independently of its claim to our special attention as the only food-plant of Chærocampa Celerio; whilst the allied species, Deilephila Livornica, Chærocampa porcellus and C. elpenor, are also partial to this plant. Speyer gives Agrotis aquilina as a vine-feeder; but I think if Guenée were consulted on this point he would dissent; the habit of the larvæ of the genus Agrotis, according to his observations, being to conceal themselves among roots during the day, only protruding the anterior segments of the body sufficiently to reach the lowermost leaves of the surrounding herbage (Guenée, 'Histoire Naturelle des Noctuélites,' vol. i. p. 254). Speyer also mentions Lobesia reliquana as feeding on the vine. But there are two Micro-Lepidopterous larvæ which are great enemies to the vine-growers of the South of Europe, Œnectra Pilleriana, on which several essays have been written in France, to show the best modes of preventing the ravages of Le Pyrale de la Vigne, and Eupæcilia ambiguella (roserana, *Frölich*), which latter feeds on the young flower-buds, thereby assisting Father Mathew in the temperance-movement most essentially. The larva of Œnectra Pilleriana is not exclusively a vine-feeder, having been noticed on many low plants, and Mr. W. Wilson Saunders found it some years ago in the Isle of Wight, in the green capsules of Iris fœtidissima. The larva of Elachista ? Rivillei, to which attention has recently been drawn in the 'Transactions of the Entomological Society,' vol. iii. N. S. (Part 3) pp. 87—89, is also a vine-feeder, and may very probably be found in the South of England.

Geranium. Crane's-bill.

As a general feeder on this genus of plants Speyer mentions Clisiocampa castrensis, of which, however, the sea wormwood (*Artemisia maritima*) is, I believe, the principal food-plant in this country.

Geranium pratense. Meadow Crane's-bill.

On the capsules of this plant in August may be found the larva of Heliothis marginata; Duponchel and Guenée, however, both seem to agree in representing it as very difficult to rear.

Geranium Robertianum. Herb Robert.

Though so common a plant, frequenting many a pleasant hedge-bank, we do not know of any Lepidopterous larva specially attached to it. Zeller has, indeed, suspected ('Linnæa Entomologica,' vol. vi. p. 341) that the larva of Pterophorus acanthodactylus feeds on this plant, he having found the larva of that species on a Pelargonium in his garden, and having frequently taken the perfect insect among Geranium Robertianum. Of course the larvæ of a Pterophorus must be sought for on the flowers or seeds, for they are great epicures.

Erodium cicutarium. Hemlock-leaved Crane's-bill.

A common plant on sandy or gravelly soils, and assigned by Speyer as a food-plant to Polyommatus Agestis. I wonder if any of our Lewes or Brighton collectors could find the larva of that species, for no doubt Mr. Logan would be extremely glad to see it, and compare it with his larvæ of P. Artaxerxes, which I am still inclined to think only a climatic variety of P. Agestis.

Linum usitatissimum. Common Flax.

Speyer mentions, from his own observations, Calocampa exoleta as feeding on this plant; but I am not aware of any other Lepidopterous larva attached to it, though I am strongly disposed to think that several species of Micro-Lepidopterous larvæ might be found if the flax-fields were carefully examined by the entomologists who happen to be located in their vicinity.

Impatiens Noli-me-tangere. Yellow Balsam.

Why should we use Noli-me-tangere as a specific name for a plant, and yet scruple to use Pavonia-minor for a moth?—if names composed of two words are objectionable, why use a name composed of three?

Speyer gives Coremia ligustrata as feeding on this plant, the larva being figured on it by Hübner; Duponchel says it feeds on several low plants, and not on the privet; hence no doubt some purist in nomenclature would like to change its name, though I have no doubt, if the name itself could speak, it would say "Noli-me-tangere."

Oxalis Acetosella. Wood Sorrel.

This pretty little plant, with its delicate green leaves and graceful white flowers, is partial to woods, showing itself from beneath the fallen leaves simultaneously with the more robust wood Anemone (*Anemone nemorosa*). The Oxalis Acetosella is not known as the special food-plant of any Lepidopterous larva; but two Noctuæ (not hitherto known as British), Mesogona Acetosellæ and M. Oxalinæ, have received their names from it: the larvæ of these feed on various low plants in May and June.

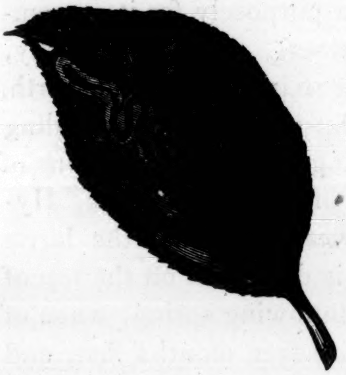
Euonymus Europæus. Spindle-tree.

A common shrub in hedges and woods. Speyer enumerates as feeding on the spindle, Acherontia Atropos, Ennomos evonymaria a Geometra, in spite of the abundance of its food-plant with us, not hitherto detected as British), and Zerene adustata. One of the most interesting of the spindle-feeders is Acrobasis angustella, of which I believe only two British specimens are extant; it is double-brooded, the larva feeding in July between united leaves, and in the autumn in the fruit of the plant: strange that with this knowledge we cannot find the insect! It is on this plant that three species of Hyponomeuta feed, H. Evonymellus, H. irrorellus and H. plumbellus; H. Evonymellus is, indeed, notorious for its occurring on spindle-bushes, frequently to such an extent as completely to defoliate them; and the ignorant, of course, concluding that the caterpillars that made white webs on the spindle were identical with those making similar webs on the apple-trees, and, having noticed that the spindle was more infested by them than the apple, have gravely suggested that spindle-trees should be freely planted in gardens and orchards to attract to them the larvæ which would otherwise injure the apple-crops: there is no necessity to revert to the time of Rösel's gardener to show that horticulturists would be wiser "in their generation" for some *knowledge* of insects and their habits. The larva of H. Evonymellus does not attach itself to orchard-trees; nor should we find it in our gardens at all unless we kindly planted the spindle-tree purposely for its accommodation. Of Hyponomeuta irrorellus, formerly so great a rarity, the larva has lately been discovered by Mr. Kirby, of Wandsworth, feeding on this plant in July, the same bush sometimes affording shelter both to this species and the preceding. The observations of Lewis and Zeller have shown that the eggs of the apple-feeding Hyponomeutæ are hatched *at the end of summer*, and that the larvæ remain, under the glutinous covering which is deposited on the top of the cluster of eggs, without feeding till the following spring, when of course the larvæ are pretty hungry after their seven months' fast, and commence feeding on the young leaves with a good appetite. The larva, however, of Hyponomeuta plumbellus has a very pecular habit, for, though we know not when it emerges from the egg, yet its first appearance in the spring is not as a feeder on leaves, but it feeds on the pith of the young shoots, and its presence may be recognised by the drooping of the terminal leaves, just as though they had been pinched by a late frost in April; the larvæ, however, soon quit their abode in the twigs, and come out to feed on the leaves, making small webs; for this species is not gregarious, only a few occurring on one bush: after the larva has quitted the stem of the twig, the rapid growth of the plant soon enables the drooping leaves to revive; so that in a short time there is nothing to betray the whereabouts of the larva but the slight web that it makes. How necessary it is to be cautious in generalizing!

The larva of Theristis caudella also feeds on this plant: it lives gregariously two or three together within a broad web, in June and July ('Treitschke,' ix. 2, 43).

Rhamnus Catharticus. Buckthorn.

A plant widely distributed, occurring in hedges; but, as far as my experience goes, I have never seen it in any plenty; however, it is rather a close-growing shrub, and affords considerable shelter for insects. The beautiful velvety green larva of Gonepteryx Rhamni first claims our attention. Speyer also gives Polyommatus Argiolus as feeding on the buckthorn, though I believe it is more partial to the flowers of holly and ivy. Speyer next mentions the larvæ of three of the Geometridæ, Scotosia Rhamnata, S. vetulata and Triphosa dubitata: the larva of S. vetulata feeds in the young leaves before they are fully expanded, and is very plentiful at the beginning of May; but when it quits the young leaves it appears to conceal itself most effectually, as after it is half-grown it is extremely difficult to find. The larva of Bucculatrix Frangulella is stated by Zeller to feed on Rhamnus Catharticus, as well as on R. Frangula, to which latter the observations of most authors have restricted it. Nepticula Catharticella is very abundant, in the larva state, on this plant, in July and October. Some idea of the appearance of the leaf mined by this Nepticula larva may be gathered from the annexed wood-cut.



H. T. Stainton.

Mountsfield, Lewisham,
March 4, 1855.

(To be continued).

NOTICES OF NEW BOOKS.

'*The Annals and Magazine of Natural History.*' Nos. 85 to 88, dated January to April, 1855; *price 2s. 6d. each.* London: Taylor & Francis, Red Lion Court, Fleet Street.

No. 85 contains the following papers:—

'Notes of an Excursion to the South of France and the Auvergne in Search of Diatomaceæ.' By the Rev. William Smith, F.L.S., Professor of Natural History, Queen's College, Cork.

'Amended Characters of the singular Lymneadous Genus Camptoceras, and Description of a new Ancylus, inhabitants of North-Western India.' By W. H. Benson, Esq.

'Characters of the Genus Opisthoporus, an Eastern form of the Cyclostomacea, with Remarks on its Affinities, and Notes on several Opercula.' By W. H. Benson, Esq.

'On Artificial Sea Water.' By Philip H. Gosse, A.L.S.

'Notes on Swiss Mollusca.' By J. Gwyn Jeffreys, Esq., F.R.S.

'Sketch of the Life of the late Professor Edward Forbes.' By J. H. Balfour, M.D., Professor of Botany, Edinburgh. [From 'Transactions of the Botanical Society of Edinburgh.']

Bibliographical Notices:—'The Entomologist's Annual for 1855;' edited by H. T. Stainton. 'A Catalogue of British Fossils;' by John Morris, F.G.S. (second edition). 'Popular Conchology;' by Agnes Catlow (second edition).

Proceedings of Societies:—Zoological.

Miscellaneous:—Note on the Reproduction of Ligula; by M. Brullé [from the 'Comptes Rendus' for October 23, 1854, p. 773]. Description of the Animal of Cyclina Sinensis; by Dr. J. E. Gray. Observations on the Development of Actinia; by M. Lacaze-Duthiers [from the 'Comptes Rendus' for August 28, 1854, p. 434].

No. 86 contains the following papers:—

'Some Account of the Actiniadæ found upon the Coast near Teignmouth, Devon.' By Robert C. R. Jordan, M.B. Lond., Professor of Comparative Anatomy, Queen's College, Birmingham.

'On a Monstrous Oyster Shell.' By George Busk, Esq.

'On Hypericum anglicum.' By Charles C. Babington, M.A., F.R.S., &c. [From the 'Proceedings of the Botanical Society of Edinburgh.']

'On the Ornithology of Malacca.' By A. R. Wallace, Esq.

'Descriptions of the Animals of certain Genera of Bivalve Shells.' By S. P. Woodward, Esq., F.G.S.

'On Fossil Echinoderms from the Island of Malta; with Notes on the Stratigraphical Distribution of the Fossil Organisms in the Maltese Beds.' By Thomas Wright, M.D., &c.

'Notes on British Zoophytes, with Descriptions of New Species.' By the Rev. Thomas Hincks, B.A.

'On the Marine Vivarium.' By C. S. Harris, Esq.

Proceedings of Societies:—Zoological—Linnean—Royal—Botanical of Edinburgh.

Miscellaneous:—Observations on the Nests of Humming Birds; by John Gould, Esq., F.R.S., &c. [from Proc. Zool. Soc. July 26, 1853]. On a Marsupial Frog (*Notodelphys ovifera*) from Venezuela;

by Dr. D. F. Weinland [from Müller's Archiv for December, 1854, p. 449]. Descriptions of Two New Species of Ptilonopus; by George Robert Gray, F.L.S., F.Z.S. [from 'Proceedings Zool. Soc.,' Mar. 22, 1853].

No. 87 contains the following papers:—

'A Monograph of the Indian Species of Phylloscopus and its immediate Affines.' By Edward Blythe, Esq. [From the 'Journal of the Asiatic Society of Bengal,' No. 5, 1854].

'On Fossil Echinoderms from the Island of Malta; with Notes on the Stratigraphical Distribution of the Fossil Organisms in the Maltese Beds.' By Thomas Wright, M.D.

'On the Genera Pionandra, Cliocarpus and Pœcilochroma.' By John Miers, Esq., F.R.S., F.L.S., &c.

'On the Discovery of Viviparous Fish in Louisiana.' By B. Dowler, M.D. [From 'Silliman's Journal' for January, 1855].

'On the Anomalous Oyster-shell described in the 'Annals' for February.' By Dr. J. E. Gray.

'On Actinophrys Sol.' By E. Claparède. [Abridged from Müller's Archiv for December, 1854.]

Proceedings of Societies:—Zoological—Royal—Botanical of Edinburgh.

Miscellaneous:—On the Movements and Reproduction of the Naviculæ; by M. Focke [from the 'Comptes Rendus' for Jan. 22, 1855, p. 167]. On Lottia zebrina and L. Scurra; by Dr. J. E. Gray. Description of a New Species of Sorex from India; by R. Templeton [from Proc. Zool. Soc., July 26, 1853].

Dr. Dowler's paper on Viviparous Fish is extremely interesting: the following is an extract:—

"In the month of October, 1854, through the politeness of J. C. B. Harvey, M.D., of Tchoupitoulas Street, I received a small osseous fish, caught in the New Orleans Canal, which connects the city with Lake Ponchartrain. This fish had been placed in a basket containing crabs, one of which wounded it slightly in the abdomen, near the cloaca, thereby exposing several fœtal fish enveloped in a delicate membrane. The parent fish, which had been rudely thrust into a narrow-mouthed phial of spirits, retains, after immersion for two weeks, the original *rigor mortis*, and the same remark applies to the fœtuses, though they have been soaked in water some of them have been forcibly straightened. On the 17th of October, in the presence of, and assisted by, Drs. J. Hale and M. M. Dowler, I enlarged the wound, and proceeded to dissect a somewhat globular mass of fœtuses, bounded by the intestines before, and separated from them by an indescribably thin, diaphanous membrane; this mass was further bounded above by the spine and ribs, below and behind by the posterior inferior abdominal walls, bulging backward of the anal orifice and fin. The exterior envelope of this oblong globe consisted of a very thin, pellucid, extremely delicate and apparently laminated and flocculent membrane, like the amnion of the human embryo in the early state: it did not form a simple sac, but consisted of many duplications, like the arachnoidal reflections among the sinuosities and convolutions of the human brain, sending its prolongation as the hyaloid membrane does through the vitreous mass of the eye. This uterine membrane (ovisac it cannot be termed) contained twenty-two fishes. It is probable that the inner surface of the uterine membrane sent forth a still more delicate membrane, which enveloped each fish after the manner that the peritoneum envelopes the abdominal viscera; but the parent fish, and still more its enclosed organs, were too minute to admit of full demonstration during a necessarily hurried examination; moreover, the wish not to mutilate the parent fish very much prevented a fuller dissection of the fœtal mass *in situ*. Each fœtal fish was doubled laterally, sometimes to the right, sometimes to the left, into a globular form: the caudal fin, which is inclined to the lancet shape, though blunter, overlapped one eye and one side of the mouth: each fish *in situ*, and even after forcible extraction from its bed, was enfolded in a sac: some were drawn out united by pedicles to a common stem, somewhat like an umbilical cord. These fœtal fishes presented a perfect example of close packing. A perceptible force was required to dislodge them from their beds. The concavity left by their extraction appeared to be lined with a smooth, black, peritoneal membrane. The intestines, which were very minute, were crowded forward by the rounded mass of fœtuses which occupied the greater portion of the abdominal cavity. No ova were discovered.

"Without attempting fully to describe even the dermal skeleton, I may observe that this tiny fish is a most symmetrical one. Its minuteness may be imagined when I state that after the removal of the enclosed fœtuses it weighed only seven grains, though not disemboweled. Thorough desiccation would probably reduce its weight one half or more. The fish exposed for two hours in the shade on a damp day was but slightly desiccated. It was weighed by Mr. Macpherson, apothecary, in my presence; but fearing a mistake I had it weighed a second time, with the same result. If each fœtus weighed but one grain, the aggregate would be more than three times that of the mother."

No. 88 contains the following papers:—

'A Comparative View of the more important Stages of Development of some of the higher Cryptogamia and the Phanerogamia.' By Charles Jenner.

'Observations on the Natural History and Habits of the Common Prawn (*Palæmon serratus*).' By Robert Warington, Esq.

'Report on a Collection of Diatomaceæ made in the District of Braemar by Professor Balfour and Mr. George Lawson.' By R. K. Greville, LL.D., &c.

'On Fossil Echinoderms from the Island of Malta; with Notes on the Stratigraphical Distribution of the Fossil Organisms in the Maltese Beds.' By Thomas Wright, M.D., &c.

'On Monopus medusicola, a species of Leech.' By Philip Henry Gosse, A.L.S.

'On Ancylus oblongus and A. fluviatilis.' By William Clark, Esq.

'On Actinophrys Sol.' By E. Claparède. [Abridged from Müller's Archiv for December, 1854.]

Proceedings of Societies:—Royal—Zoological—Linnean—Botanical of Edinburgh.

Miscellaneous:—On the Anomalous Oyster-Shell; by Professor J. S. Henslow. Description of a New Species of Corynactis; by William Thompson [from Proc. Zool. Soc., Nov. 8, 1853]. On the Species confounded under the Name of Laminaria digitata, with some Observations on the Genus Laminaria; by M. A. Le Jolis [from the 'Comptes Rendus' for Feb. 26, 1855, p. 470]. Descriptions of two New Species of Humming Birds from Pera; by John Gould, Esq. [from Proc. Zool. Soc., November 22, 1853].

'*A List of the British Species of Geodephaga, intended for marking Desiderata and labelling Collections, taken from Mr. Dawson's Geodephaga Britannica.*' By G. Guyon, Richmond, Surrey. *Price (prepaid by post) Four Stamps.*

This, although merely a list of names, will be found highly useful to the Coleopterist; and I sincerely hope may have the effect of increasing the sale of Mr. Dawson's work, since many of the specific names, brought into use by that careful author, are unintelligible until accompanied by his own satisfactory explanations: the synonyms would have made the list far more valuable to the student; but would certainly, at the same time, have trebled the cost.

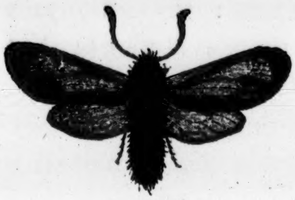
'*The Entomologist's Annual for* 1855, *comprising Notices of the New British Insects detected in* 1854.' *Lepidoptera*, by the EDITOR. *Hymenoptera*, by FREDERICK SMITH. *Coleoptera*, by E. W. JANSON. Edited by H. T. STAINTON. London: Van Voorst. 1855.

The same Work. Second Edition, with considerable additions, including Instructions for Collecting, Preserving and Arranging Insects, and an Address to the Young Entomologists at Eton, Harrow, Winchester, Rugby, and at all other Schools. 154 pp. 12mo. One coloured plate. *Price* 2*s*. 6*d*.

THIS work is a very useful one: it is the following out of a plan which I think originated with myself, of giving a summary, at the end of the year, of our entomological doings during the year: this was partially and imperfectly carried out in the Preface to several successive volumes of the 'Zoologist,' but was suspended on my election to the chair of the Entomological Society in favour of the new obligation then devolving on me of preparing an annual address. Thus a hiatus of two prefaces has occurred, the matter, however, appearing in a somewhat altered form; and I trust, life and health permitting, to resume the agreeable task at the close of 1855.

Although, in the explanatory title of the 'Annual,' which I have given *verbatim*, the Editor only promises a summary of the labours of the year, yet these constitute but an infinitesimal part of the book itself: thus the Lepidopterous portion is headed after this fashion—"New British Species since 1835," which, according to my comprehension, comprises twenty years instead of one. The Hymenopterous summary is a retrospect of all discoveries since the 'Monographia Apum,' a period of fifty-three years! The Coleopterous summary, commencing with 1839, comprises sixteen years. This is indeed so much more than bargained for, and is most acceptable, but is quite at variance with the character of an annual summary.

With regard to the second edition, the additions are admirable: the directions by Mr. Wollaston on collecting Coleoptera are the best of the kind hitherto offered for the instruction of the juvenile entomologist.



The annexed wood-cut, representing Zygæna Minos, one of the novelties of the year, has been most obligingly lent me by the Editor of the 'Entomologist's Annual.' My readers will recollect that this novelty was captured in Ireland, as recorded in the pages of the 'Zoologist.'

'*The Aquarium: an unveiling of the Wonders of the Deep Sea.*' By PHILIP HENRY GOSSE, A.L.S., &c. London: Van Voorst. 1854. Post 8vo, 276 pp. letter-press, six coloured plates and six lithographs. *Price* 17*s. cloth.*

MR. GOSSE is one of the most prolific and pleasant of writers, and, were it not that he occasionally introduces extraneous topics rather too freely, his book would be a most captivating fire-side companion. I must, however, protest against what has been called "the introduction of religious homilies *à propos* to nothing." I will give Mr. Gosse's heading of an entire chapter in order to illustrate my meaning:—

"A Meditation—The Spiritual Uses of Natural History—Extremes of Opinion—Spiritual Warrant for the Study—Its Limits—Three Inspired Modes of Treatment—I. Direct Testimony to God—Founded on our Ignorance—On our Knowledge—Various Attributes of God discoverable—Responsibilities—Cain's Offering—II. Moral Lessons by Examples—III. Spiritual Parallelisms—Similes—Types—Symbols—Allegories—God's Message of Grace."

I have nothing to object to in the mode of treatment: I am willing to believe that an Archbishop of Canterbury himself would not have handled the subject more logically or expressed it with greater unction; but is it in keeping with what immediately precedes? "Fiddler Crab—A 'Striking' Species—Ferocity—Greediness—Tit for Tat—An Odd Fish—Rubbish—A Fine Beard, &c. &c." Is it in keeping with the objects for which the book is ostensibly written? Is it in accordance with the impression by which every advertisement of the book seeks to secure purchasers? Are we anywhere told, or is it even hinted, that the book is mentally medicinal, a drastic curative, the unpleasant flavour of which is to be concealed in the saccharine vehicle of Natural History?

It must, however, in fairness, be stated that Mr. Gosse's 'Aquarium' is a most agreeable and delightful book, and that the saccharine vehicle predominates to a great extent. There are multitudes of passages marked for extract, passages which nothing but the want of space prevents my transferring to the 'Zoologist,' and which may still be considered as standing over for a more leisure moment: in the mean time, let me intreat Mr. Gosse to separate his theological from his physical labours, and to learn the truth that a Natural-History writer may be truly pious, may even convey religious instruction to his readers, without making the dose so powerful as that presented to us in the 'Aquarium.'

'*A Brief Memoir of the Life and Character of William Baker, prepared principally from his Diary and Correspondence.*' By JOHN BOWEN. Taunton: May, 1854. 128 pp. 8vo.

THIS is a brief but interesting memoir of a most intelligent man: it is penned by one who, to feelings of true and genial kindness towards the deceased, adds an amount of veneration that seems almost boundless for his scientific acquirements; and thus we have an inflated panegyric rather than a faithful biography. Poor John Bowen had paid the debt of nature before this memoir reached my hands: he survived his friend but six months: William Baker died on the 8th of October, 1853; his devoted friend and biographer on the 29th of March, 1854.

> "Scarce had lamented Forbès paid
> The tribute to his minstrel's shade:
> The tale of Friendship scarce was told,
> Ere the Narrator's heart was cold."

It is difficult to say a word in depreciation of a memoir published under such circumstances as these; but Mr. Bowen was no naturalist, and, believing Mr. Baker to be a profound one, and taking in the most implicit faith *omne ignotum pro magnifico,* he brings into painful prominence little inaccuracies over which a naturalist would have drawn a veil: for instance, Mr. Baker wrote and pronounced a very common word "amphibœa;" Mr. Bowen preserves the spelling: Mr. Baker writes of "the bronze-winged Bipustulata;" Mr. Bowen preserves this: a naturalist would have quietly given the term a meaning by making it Malachius bipustulatus. Of course a man of Baker's industry and Gilbert-White-like observance of natural phenomena was visited by naturalists passing through the town where he resided; Mr. Bowen regards him such a law-giver in Science that these were the visits of philosophers coming from the ends of the earth to sit at his feet. The following passage explains the observing, truth-seeking character of the man, even up to the last days of his life, and, at the same time, corrects his biographer's assumption that Mr. Baker's knowledge of Natural History was universal and profound:—"The very last exercise of this talent (drawing) was on the larva of the death's-head moth, an unusually coloured specimen of which was sent him by his friend Mr. Richard Anstice. This was thought a new species, and another drawing made and sent to Mr. Newman, the Zoologist, who found it to be only a variety of the Sphinx Atropos, differing somewhat from the usual specimens in size and colour."—p. 119. Such inquiries frequently reached me, often couched in terms of child-like simplicity; always in a spirit of diffidence and evident distrust of his own knowledge. It was this excess of diffidence, this fear of recording observations that might be unimportant or trifling that prevented William Baker from giving to the world a work equal in interest to White's 'Selbourne' itself.

When, at fourteen years of age, he was bound apprentice, he says, "I was so well acquainted with the nests and eggs of birds, their songs, and even their call-notes, that I readily recognised those of one species from another. In after life I have never improved, I think, and have scarcely retained the delicacy of my ear for the ever-charming music of birds."—p. 6.

During his apprenticeship he was a fifer in a volunteer corps, raised to fight the French; and also an actor: in his own Diary Mr. Baker introduces us to one of the same craft, who afterwards became more famous as a Shaksperian tragedian than any other Britain has produced. For the benefit of Mrs. Kent, an invalid actress then at Bridgewater, it was agreed, with the assistance of a Mrs. Cary and her two sons, and of two or three amateurs, among whom were young Baker and his biographer, Bowen, to perform the 'Merchant of Venice.' "The arrangement and study of our parts brought us altogether on evenings, after the hours of business, and the talent and agreeable person of the younger Cary, about sixteen years of age, were very attractive. I became particularly acquainted with him, and was exceedingly partial to him."—p. 13. After three or four "good houses" in Bridgewater, the company, with the exception of Baker, toured the neighbourhood, performing in Cannington, Stowey, Wiveliscombe and Crowcombe. "Here, then," continues the narrator, "in barns and village inns, were displayed the youthful talents of the future prop of Drury Lane—the magnet of attraction, the star before whose brightness all rival influences were to become pale." This talented and agreeable young Cary of course became Edmund Kean: whether he changed his name by Act of Parliament or by what other process this deponent knoweth not.

In 1804 Baker marched with his regiment, as second fife, to Taunton, and while stationed there on what he calls "permanent duty," began his first entomological collecting. In 1805 a second march to Taunton was effected, and "I had now attained," he writes, "to the honour which I had been ambitious of; I took my place at the right hand of the front line of our little band, and was its leader."

He, however, very soon gave up soldiering, and obtained employment as a journeyman currier in London; and his account of attending lectures, especially against the use of gas, then proposed for street illumination, is curious. "Every possible evil was prognosticated from explosions and poisonous exhalations. In proof of this, birds, rabbits, and other animals were exhibited to audiences under bell-glasses, and an atmosphere of gas admitted to the luckless prisoners in their confined cells, and, as foretold, death of course speedily followed."—p. 36. What reader of the 'Zoologist,' residing in any of our large towns, has not since seen the same scenes enacted against railways [illegible] some patriotic gentleman, selected for oratorical power, presiding [illegible] the chair, eloquently describing railways as an invention of the Evil One, and lashing the butchers, bakers and tailors into a whirlwind [illegible] phrenzy at the idea of London mutton chops, London penny rolls, [illegible] London trowsers being introduced into their hitherto peaceful homesteads! then, in sepulchral intonations, describing their wives as inmates of unions, and their children as begging bread. Baker neither liked London nor the anti-gas agitation; he was surprised at the want of knowledge exhibited by the lecturers; he was startled at the obstinate resistance to what he considered so great a boon: and he records that his friend Bowen from that time contracted an aversion to lectures and lecturers, with but few exceptions, which he never overcame. He pined for the country, and soon had an opportunity of leaving London on what is usually called "the tramp," seeking, and sometimes obtaining, employment in the larger towns, as, for instance, at Northampton, Nottingham, Hull, Newcastle, Kirkaldy and Glasgow. In his notes of this tour there is little of Natural History; but at Kirkaldy, on the 3rd of October, he says, in a letter to his parents, "The robins are come into the gardens singing their plaintive songs; I know from this that the beauty of your garden is fading. When I was at home the withering flowers and the robin's song used to make me sweetly melancholy. I am surprised to see the swallows flying about in this part yet. I have not forgotten my collection of insects since I have been out, for I have caught several moths and butterflies, which I have preserved in Thompson's 'Seasons.'" [!]

At the age of twenty-two, he settled at Bridgewater in a small currier's shop, and two years afterwards married. He now commenced in earnest that collection of insects which is supposed by his friends to have eventually become unrivalled. I use the expression "supposed" because I am not aware, from the evidence of any entomologist, what was the extent of a collection which was undoubtedly the wonder of his own neighbours and acquaintances. He continued forming and arranging this collection, without the aid of any books whatever, and, when he subsequently obtained a work compiled from Linnæus, he found that he had made a very similar arrangement of the various groups. Shortly afterwards he purchased Donovan, and feasted on this expensive publication.

At this time his attention was also occupied by birds, fishes, reptiles, and especially by fossils, and although he describes himself as "travelling round and round his counter, cutting heel-taps, weighing sparrow-bills and counting hob-nails," yet his heart was in Science; and now commenced a correspondence with Dr. Leach, which exhibits that learned entomologist in a very amiable light, and as rendering every assistance to this comparative tyro in the science. In a letter to Dr. Leach, dated October, 1818, Mr. Baker records the great number of Colias Hyale and Vanessa Cardui that occurred that autumn in the neighbourhood of Bridgewater: the former had not been seen for four years.

We next find Mr. Baker corresponding on fossil saurians and lily encrinites; moving into more extensive premises; and converting a spacious loft into a museum, "where the boa constrictor could stretch its vast length along, and the solan goose and the swan expand their wings unchecked," and the biographer speaks of this museum as "that motley store which was open to everything, from the head of an alligator to the egg of a humming-bird." These passages given by a kind-hearted and almost worshipping friend, are no doubt strictly true, but do not impress the scientific reader quite so favourably as the admiring writer. A taste for the miscellaneous collecting of curiosities is not exactly that development of scientific talent which leads to lasting and beneficial results. It was, however, in Geology that William Baker attained most proficiency; he was elected a member of the Geological Society, and attained the lasting friendship of many of the most eminent professors in that seductive science. He was a man of perfect integrity and strict moral conduct; a diligent tradesman, supporting an expensive family by his own unwearying industry; a kind and hospitable friend; and in every sense of that too common-place expression, a "good man." I knew him personally, and enjoyed his company. I well recollect the animation with which he explained to me his views respecting the identity of the salmon and trout, a subject on which he had experimented and observed for many years: I am aware of the danger of misrepresenting the views of one who declined to reduce them into form for publication; but the impression left on my mind by his conversation was, that he believed all our Salmonidæ to constitute but a single species, races of which, by long isolation in lakes and streams, assumed different specific appearances, and, reproducing *inter se*, perpetuated their peculiarities: but that the entire series and "system," so to speak, of our supposed species and varieties, might and would be reproduced in the process of time from a single pair of either.

To write a memoir of William Baker, more faithfully portraying his estimable qualities as a man or less correctly setting forth his undoubted qualifications as a naturalist, were almost impossible. As showing how a good man can struggle upwards under every difficulty, it is a valuable essay; as a contribution towards Natural-History biography, it is all but useless.

Observations on the Natural History and Habits of the Common Prawn (Palæmon serratus). By Robert Warington, Esq.*

Having during the years 1852 and 1853 had the opportunity of making some observations on the natural habits and minute characteristics of the common prawn (*Palæmon serratus*), which I understand are novel, I have been induced to collect the results together, and submit them to the readers of this Journal.

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* From the 'Annals and Magazine of Natural History' for April, 1855, and obligingly communicated by the author.

The observations about to be detailed were made in the small tanks or aquaria already described,* in which the balance between the animal and vegetable organisms in a medium of sea water was permanently maintained without artificial aëration or disturbance. The materials employed for effecting this, in the aquarium now under consideration, consisted of the Ulva latissima and Enteromorpha as the vegetable members of the circle; several varieties of Actinia, Madrepora, Annelida and Palæmon, to represent the animal section; while the functions of the scavengering mollusks were fulfilled by Littorina, Trochus and Purpura. The small tank, containing these several organized members, was constructed of a zinc framing 3 feet in length, 1 foot in depth and 1 foot in breadth, having the bottom, ends and back filled with slate, and the front, or part towards the observer, glazed with plate glass, the whole being covered over loosely by a shade partially glazed, so as to impede the evaporation of the water, exclude as much as possible the soot and dust of the London atmosphere, while, at the same time, a continual change of air could take place. A quantity of rock-work was also introduced, and so arranged that the creatures could readily find a retreat, or screen themselves from the strong influence of the sun's rays during the day, and from the numbing effects of radiation in a clear night. A short and small shingle beach was also constructed at one extremity of the aquarium, to enable the various denizens to retreat to shallow water whenever they should be so inclined.

Into this vessel, thus arranged, several individuals of the common prawn were introduced during the months of October and November, 1852: they were fed every second or third day with small pieces of either oyster, mussel, cockle, shrimp, and the like, or, when these could not be obtained, with softened shreds of raw, lean meat, which had been previously dried by exposure to the air, in order to preserve it from putrefaction, and allow of its being kept as a store of provision capable of being had recourse to as occasion might require.

The manner in which these beautiful creatures take their food while foraging about the tank is very interesting. The first and second pair of didactylous feet are cautiously and continuously thrust into every cranny, around and partially under the pebbles and rock-work, and often into the tubes of Serpulæ or Sabellæ, or the shells of the univalve mollusks and others; and these, if not protected by an operculum or some provision for closing the orifice of their tube or shell, soon fall a prey to their attacks. When anything edible is met with, it is rapidly seized by these prehensile feet and transferred to the jaws.

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* Transactions of the Chemical Society, as published in their 'Quarterly Journal,' vol. iii. p. 52, 1850; 'Garden Companion,' January, 1852; 'Annals and Magazine of Natural History,' vol. x. p. 273, and vol. xii. p. 319.

The senses of touch and smell in the Palæmonidæ are exceedingly delicate, the latter appearing to reside most strongly in the antennæ. Thus, when a small particle of food has been dropped into the water and has sunk to the bottom, the moment the antennæ of the prawn in its movements pass across the column of water through which the food has fallen, the whole motion of the creature becomes changed in an instant, and it darts rapidly here and there, from the surface throughout the path of its transit until it is discovered; and often, after it has been devoured by the one, a second prawn will, on reaching the same locality, gain the scent and hunt over every spot in search of that which had been already removed, but which evidently had left its track of odour behind. It has very often occurred, that if some one of the Actiniæ had been first fed, the Palæmon, on gaining the scent, has tracked the food to the Actinia and speedily rifled it of its repast; and, in instances where the latter had even transferred its meal by means of its tentacula to its pouch, the prawn has redoubled its efforts, and frequently dragged the savoury morsel out of its very stomach. This operation it effects in a very surprising manner: the Palæmon charges, without any apparent fear, full on the extended disk of the Actinia, the tentacula of which it keeps in constant play by means of its three pairs of unarmed feet, while, at the same time, one of the second or larger pair of prehensile feet is thrust into the orifice of its maw, and the food forcibly and quickly extracted. The only chance the poor Actinia has of preventing this and securing its feast appears to be by contracting the whole of its tentacula together, and thus forming itself into a small globular form, so as to close entirely all approach to the orifice of its stomach. The energy with which this attack is effected depends very much on the keenness of the prawn's appetite, and, in cases where the Actinia is strong and also very hungry, the conflict is often very severe, and the aggression is sometimes, though rarely, successfully repelled.

The first pair of didactylous feet are slender and most delicate in their structure, and, when examined with a magnifying glass, are found to be provided at their extremities with a brush-like appendage of short hairs standing out at right angles to the claw. The power of motion with which these are endued is most wonderful, and their usefulness is applied in every conceivable direction,—around the eyes, and among the apparently complicated apparatus of mandibles, antennæ and palpi, at the head, within or beneath the carapace, and for some distance between it and the body, particularly when the period of moulting is approaching; also for the cleansing of the abdominal false feet or swimming webs and the expanded lobes of the tail: and the appearance of the prawn during the execution of the brushing or scrubbing operation at these more distant parts is grotesque in the extreme; the body is supported and raised high on the four pair of legs, the abdominal part and tail being curved forward between them, so that the whole posterior division of the creature can be brought within the reach of the first pair of feet, and thus the necessary cleansing operation be readily effected.

When in full swimming action, the appearance of these beautifully transparent creatures is most elegant. The front feet are generally laid backward and tucked under the body, like the fore legs of the deer tribe in the act of leaping; the long and delicate antennæ stream gracefully on each side of its body, and float for some distance beyond its entire length, while its strong abdominal paddles propel it rapidly through the water. In the aquarium under consideration, the whole of these elegant creatures were in the habit, on the summer evenings, of careering to and fro for upwards of an hour's duration, close to the glass front of the case and towards the room, presenting a most pleasing object, and one which must be observed in order to be appreciated, as no description can convey an adequate idea of the interesting scene.

It is also a curious and striking phenomenon to observe these Palæmonidæ by the aid of a lighted candle or lamp in a dark room during the night, in consequence of the bright reflection of the luminous body from their prominent pedunculated eyes; and as the prawn does not retain a stationary position, but slowly roams about through the water and over the rock-work seeking for its food, it adds an increased interest to the appearance to behold these small globes of bright light, like the bull's-eye signal-lamps of a miniature railway engine looming through the distance in a dark night, moving slowly along, the body of the creature being quite imperceptible, and nothing visible but these pairs of globular balls of fire shining from out the dark water. Even the small eyes of an allied species, that remarkable little crustacean the Athanas nitescens, exhibit the same effect, although, from their shy habits and diminutive size, it can be but rarely observed.

When the period arrives at which the Palæmon serratus is about to throw off its old external covering, it ceases to feed, and seeks about from spot to spot in a restless and fidgety manner, until it has fixed on a locality apparently sufficiently adapted for the purpose required and suited to its fancy; for this really appears at times to be the case. The third, fourth and fifth pairs of legs are then stretched out wide apart, and the feet hooked so as to hold firmly upon the surrounding substances, in such a way that the body may be poised and capable of moving freely in all directions, as though suspended on gimbals. The prawn then slowly sways itself to and fro, and from side to side, with strong muscular efforts, apparently for the purpose of loosening the whole surface of the body from the carapace; the two pair of prehensile or didactylous legs are at the same time kept raised from the ground, stretched forwards, and frequently passed over each other with a rubbing motion, as if to destroy any remaining adhesion; the eyes also may be observed to be moved within their covering by muscular contraction from side to side; and when every precaution appears to have been perfectly taken for the withdrawal of its body from its too limited habiliments, a fissure is observed to take place, between the carapace and the abdomen at the upper and back part, and the head, antennæ, legs, feet and all their appendages, are slowly and carefully drawn backward and out from the dorsal shield until the eyes are quite clear of the body-shell or carapace, and appear above the upper margin of it; the prawn thus half released then makes a sudden backward spring or jerk, and the whole of the exuvium is left behind, generally adhering by the shell of the six feet to the surface it had selected for its purpose.

A moment's consideration will develope to the contemplative mind what a truly wondrous process this act of exuviation really is. When we reflect on the small size of this crustacean, and the extreme delicacy and intricacy of its various organs, and then find that in this moulting the shell of the most minute and complicated of these structures is thrown off in a complete and unruptured state, even to the gauze-like membrane covering the projecting and pedicled eye, the filamentous antennæ, the many-jointed legs, the delicate didactylous hand, the paddled abdomen with its beautiful appendages, the palpi, and all the minute spines and microscopic hairs with which these various members are provided, the human mind can hardly appreciate the wonderful wisdom of the Creative power that could have called into existence so marvellous an adaptation.

At the moment the prawn has been thus liberated from its old envelope, it rolls on the surface of the ground perfectly helpless, for it is at first, evidently, so soft that it does not possess the power of supporting its own weight erect upon its feet, while the beautifully delicate antennæ float from its head like gossamer threads through the water. In a short time, however, it plunges or springs, by a strong muscular exertion of the abdomen, from place to place, stretches its webbed tail and the large paddles of its swimming apparatus, and soon retreats into some dark and sheltered corner, where it remains, continually exercising its various organs, until such a period as the new investing membrane shall have become sufficiently hardened to allow of its venturing forth among its companions without danger, for during all this interval it is liable to their attacks whenever it comes near them, and is obliged by a series of forcible leaps rapidly to evade their attempts and escape out of their way. When the newly coated Palæmon first makes its exit from its hiding-place, its appearance is doubly beautiful; the colours are so clear and bright, particularly the orange and rich brown bands which encircle the pale blue prehensile feet, the various markings are so defined, and the small spines and fringes of hair so clean and well developed, and the deportment of the creature itself is altogether so bold and vain-glorious, as though proud of its new vesture, that it cannot but command the admiration it seems to seek.

It may be interesting to specify here the intervals of this moulting as they were observed during the summer of 1853. These periods were ascertained in the following manner. When the observations first commenced there were eight healthy prawns in the aquarium, and as each exuvium was cast off it was removed from the water and the date noted down, and by continuing this process the following results were obtained:—

May 25th, two cast skins were removed.
„ 29th, two „ „
„ 31st, one cast skin was removed.
June 5th, one „ „
„ 7th, two cast skins were removed.
„ 9th, two „ „
„ 12th, two „ „
„ 14th, two „ „
„ 16th, one cast skin was removed.

June 19th, one cast skin was removed.
„ 21st, one „ „
„ 26th, one „ „
„ 27th, one „ „
„ 28th, one „ „
„ 29th, one „ „
July 4th, one „ „
„ 9th, one „ „
„ 11th, one „ „

At this date four individuals were given to a friend, so that the number was reduced to four.

July 15th, one cast skin was removed.
„ 17th, one „ „
„ 18th, one „ „
„ 21st, one „ „
„ 30th, one „ „
August 3rd, one „ „
„ 4th, two cast skins were removed.
„ 12th, one of the prawns died during the moulting.
„ 14th, one cast skin was removed from the aquarium.
„ 21st, one „ „ „
September 2nd, one „ „ „

So that the period appears to vary from twelve to twenty-four days. This variation may depend upon the quantity of food taken by the respective individuals, and also on the varying temperature of the aquarium, which, from its small capacity and other circumstances, is very liable to be readily affected by the heat of the sun through the day, and the effects of radiation during a clear night. I may mention that, if these cast skins are not removed from the water, the prawns will devour all the smaller and softer parts, as the legs, the palpi, and the false or swimming feet, with great rapidity.

I hope in a future communication to add several observations on other varieties of the Palæmonidæ.

ROBERT WARINGTON.

Apothecaries' Hall, Blackfriars,
March 12, 1855.

A Record of some of the Effects of the late Severe Weather on Animals.—It is the opinion of Mr. Bell (Br. Quad. p. 306) that the longtailed field-mouse of English authors is the species which Ray terms Mus domesticus medius; but no reason is assigned why it should be called a domestic mouse. The late cold weather, however, has explained any doubt that may have existed on the subject, by drawing them in considerable numbers into such houses as were accessible to them.

Water Shrew (*Sorex fodiens*). This is a common animal with us, and often meets the fate of the ordinary shrew (*Sorex tetragonurus*), in being left dead on the surface of the ground in summer: it is so rarely seen in the winter as to have led to the belief that it passes the cold season in a state of sleep; but in the last week in January, when there was a smart frost, and snow lay on the ground, two of them were found lying dead on the ground; and on the 1st of February, still severely cold, another was seen to be killed by a hen. They had probably been driven from the water by the frost, which had congealed the whole surface of the stream; but their plump condition showed that they did not die from want of food. In some notes which accompany my sketches of the organs of this creature I find the following remarks:—The three internal lobes of the ear, in their ordinary condition, are closed over the aperture; so that when the animal goes into the water none of the fluid can enter through the orifice: but at pleasure, or when alarmed, it can open the aperture widely, and thus it hears well; it is able also to open or throw back a portion of the tragus, by which means a blind sack is exposed, which guards the orifice of the ear from water, and yet allows of some degree of hearing. The auditory passage is directed downward and forward, and is wide for the size of the animal. The antitragus, by being placed a little backward, forms one side of the blind pouch, and at the same time constitutes a valve for the auditory passage.

The Wren. This little bird braves our hardest winters, but the manner in which it obtains protection from the cold has been little attended to by naturalists. Solitary as they usually are, they assemble and cluster together to obtain warmth. In one case, in the hole of a hedge where moss was in abundance, my informant found them assembled together in a ball as large as a quart measure; and in a short distance of each other were three or four of these clusters, containing together little short of a hundred wrens. In less numbers this clustering is not uncommon; and when the birds are seen acting thus it is supposed to foretel a cold night: they sometimes seek refuge in the hole of a tree, and prefer a haystack before a corn-mow. The wren has not suffered from want of food, as the Turdi have done severely.

Conger. Towards the end of February a ship from Cornwall, passing northward, came among a large quantity of congers which were floating on the surface, nearly but not altogether dead, and much inflated. A boat was sent out, which took up about 500 lbs. weight of them for food, and the largest was found to weigh 30 lbs. These fish were scattered over a wide space, and the men supposed they might have loaded their ship, if so inclined. I suppose the death of these fish to be less owing to the cold of the air than to the cold water, which a long continuance of N.E. winds had driven down from the German ocean.—*Jonathan Couch; Polperro, March* 6, 1855.

The Birds of London.—Many of the feathered race love the haunts of man, and build and breed near homesteads, despite of ill usage. The thrush and the blackbird are heard throughout the year in your shrubbery, and promenade at all times on your lawn; the titmouse rears its young in a hole in the garden-wall; while the pert note of the robin is heard in the walks, and his red breast is often seen on your window-sill. Even the magpie, the most wary and cunning of birds, often selects a tall tree near the farm-yard wherein she may hatch and bring up her young. Country people laugh at our London sparrows, which abound everywhere, contrasting their plumage with the pert Passer of the barton. Every citizen knows that for years past a pair of rooks have built at the corner of Wood Street, nearly under the shade of Bow Church, while the crowns on the turrets of the Tower of London are occupied by these sable denizens every year: a considerable colony has long been settled in the large elms in Gray's Inn Gardens, from which they must have a real "bird's-eye view" of the hills that surround London. In a week or two the thrush may be heard in the gardens of Marlborough House: the recent severe weather has caused these birds to suffer in that quarter. Last week we saw a thrush, driven by hunger in quest of food, on the pavement at the back of the Athenæum Club. But we must return to the sparrows, London's sparrows, the most saucy of birds, as London urchins are the sauciest of boys:—starlings haunt Somerset House and the old buildings of the Temple; in the breeding-season they may be seen in the Temple Gardens, picking up worms and larvæ for their young broods: the sparrow attends as a gleaner to these birds, as the starling follows the rooks: as soon as the old starling has filled its crop and its beak to repletion, and is about to take its flight to its nest the sparrow watches his opportunity, and making a sudden spring snatches the redundant morsel from the beak of the old starling, and, quickly devouring it, looks out for another bird whom he may plunder in like manner. The reader may witness this feat a hundred times on a summer evening. It is curious, too, to see these same starlings feeding on the worms which showers invite from their holes: the bird darts upon the worm ere it has time to retreat, and, tugging with all its might, the mollusk is at length withdrawn, and the devourer, as he tears him from his hole, fairly tumbles heels over head! We have on more than one occasion noticed the hedgesparrow in the Temple Gardens during the autumn, a locality where ornithologists may scarcely expect to find such a bird. These remarks, it is scarcely necessary to add, apply to the more crowded districts of London, and not to the suburbs.—*J. Y. Akerman; Somerset House, March* 20, 1855.

Note on the Hawfinch.—During the late severe frost several of these singular birds were shot at Blofield, in this county, where some fine old yew trees in a garden seem to have had an irresistible attraction in a prolific crop of berries. The man who shot them gives the following account of their habits: they come, he says, "with a very rapid flight, and pitch into the yew trees like sparrows into the ivy; once there it is almost impossible to catch sight of them, as they keep amongst the thickest foliage." It was only by concealing himself that he could get a chance shot, as they rarely exposed themselves on an open branch, and on leaving the trees they again flew with great swiftness.—*H. Stevenson; Norwich, April* 17, 1855.

Extraordinary Hen's Egg.—Truly we live in an age of wonders; but I hope the oological wonder I have now to relate will not prove as hard of digestion as I fear the ornithological wonder related by Mr. Preston (Zool. 4661), concerning an "Auto-surgical Teal," will prove, even to the most enthusiastically credulous naturalist. The wonder I have to record was related to me a few days ago by the curate of the parish (Hooton Roberts, near Rotherham) in which the occurrence took place, and is as follows:—A hen belonging to a farmer in his parish having laid an egg of unusual dimensions, equalling in size a goose's egg, it was broken, with the idea of ascertaining if it contained, as is frequently the case, two yolks; but, to the good agriculturist's surprise, he found within this outer shell, and enveloped in albumen, a full-sized, perfect egg, with a strong, hard shell, but whether containing a yolk and white and a germinating principle remains to be proved, as it has been preserved entire, I believe, for the purpose of incubation: the outer egg contained no yolk. I trust that if such an instance has ever before occurred within the knowledge of any of your readers or correspondents they will make it known. I have every reason to believe the accuracy of the facts as related, which, though perhaps not inexplicable, still appear to me unprecedented.—*O. Pickard-Cambridge; Durham, April* 17, 1855.

Supposed new Snipe.—For some years past I have occasionally met with a snipe in this neighbourhood, which I strongly suspect to be distinct from the common snipe, and not hitherto described. I think the first I observed was in 1834: it was sent to me by a gentleman who devoted himself at that time to snipe shooting, and who thought, from its superior size and its general dark tone of colour, that it was a different bird from the common snipe. Some little time afterwards I submitted my bird to Mr. Yarrell, and that gentleman informed me he had consulted some scientific ornithologists, and he believed, as well as themselves, that the bird was referrible to the common species, and that the greater depth of colouring might be attributed to summer plumage. I omitted to tell him when the bird was killed (about Christmas), but if I had done so he would not have suggested this cause for the variation of the plumage. Some five or six examples have since come to my notice, and I may remark that the size of the new bird is longer and more bulky than the common snipe. The whole of the tints of the upper plumage, both as to rufous and buff markings, are darker, and the longitudinal dorsal stripes are much narrower and appear altogether more obscure than in the Scolopax gallinago. There is also more rufous about the neck and shoulders, and the under parts are more darkly clouded, with the flanks much more striated and the belly less silvery white. Mr. Vingoe has been looking out for specimens during this hard winter, and succeeded in shooting one, which he says rose without any note and without any companions. All the specimens that I have seen correspond with each other: they all appear larger than the common snipe, but, like that bird, have fourteen tail feathers.—*Edward Hearle Rodd; Penzance, March* 24, 1855.

Curious Act of Auto-surgery in a Teal—Under this title a fact will be found recorded at p. 4661, by Mr. Preston (who, I learn, has no claim to the title of "Reverend"). When I read this I felt inclined to suppress it, having frequently observed a similar occurrence, and having always given it an entirely different explanation, believing that the curious juxtaposition of feather and bone was produced by the shot, without any contrivance on the part of the bird, and indeed much against its will and convenience. Still I felt reluctant to take a step that could have the appearance of discourtesy to a correspondent and observer of nature. I therefore printed the note, and now add my own theory on the subject.—*Edward Newman.*

Occurrence of the Smew near London.—On the 26th of February I shot a very fine specimen of the smew, at a distance of about seventy yards, between the White House and Temple Mills, near Lea Bridge.—*George Beresford; Lea Bridge, Clapton, March* 13, 1855.

Wild Fowl on the Norfolk Coast.—In my notice of winter visitors to this locality (Zool. 4660) I omitted to mention Smews, of which several have been shot; amongst them four males in perfect plumage. Within the last fortnight we have had in our market two adult Bewick's swans and two young ones, and four fine specimens of the castaneous duck have been lately obtained at Yarmouth.—*H. Stevenson; Norwich, April* 13, 1855.

PS. The word "scarce," in my last note, should certainly have been "some."—*H.S.*

Occurrence of the Iceland Gull and other Scarce Birds in the Neighbourhood of Plymouth.—The Iceland gull (*Larus leucopterus*) was killed by the Rev. R. A. Julian, January 30th, on the Laira. This species is far less frequent with us than Larus glaucus; indeed, the only other specimen I know of, obtained in this locality is in the collection of Dr. Moore of Plymouth, where it has been for many years. During the late severe weather some fine examples of the gadwall, goosander and smew have been obtained, also many bitterns. The cold appears to have had great effect upon the common heron, from the unusual quantity received for preservation by the taxidermists of Plymouth.—*John Gatcombe; Wyndham Place, Plymouth, March* 10, 1855.

Insensibility of Reptiles to Poisons.—In the 'Zoologist' a short time ago I met with an observation, which I cannot now put my hand upon, respecting the insensibility of reptiles to strong poisons. This reminded me that some years ago, when I used prussic acid in killing insects, I endeavoured by its means to destroy a common water newt; but, though several strong doses were administered, no effect seemed produced on the reptile. The acid was Scheele's, and kept well corked.—*George Guyon; Richmond, Surrey, April* 9, 1855.

An unnoticed character in the structure of the Fishing Frog or Angler.—On the 14th of April I obtained a very fine specimen of the angler (*Lophius piscatorius*), which was on the same day forwarded alive to the Gardens of the Zoological Society. It was taken on the ebbing of the tide at 8 A.M., and was kept in a pool of water until 3 P.M., at which hour it was packed and dispatched. I would draw the attention of naturalists to a fact I have not seen hitherto mentioned, which is this; when looking down on the fish, the whole of the outline of the head and also the body carries little leaflets which are in constant motion. In all the drawings I have seen appendages only appear around the anterior part of the head, and these are represented as cirrhi. This is not the case; the appendages are carried round the body quite to the commencement of the caudal, and do not differ from each other, excepting in size; these are mostly ¾ths of an inch in length, nearly flat, and all shaped like an oak-leaf; they are very regular in their shape: these are, doubtless, from their constant motion, used to entice prey.—*William Thompson; Weymouth, April* 22, 1855.

Curious Habit of the Fringed-lipped Lamprey.—My friend Mr. Coombs, the Mayor of Dorchester, has lately found the fringed-lipped lamprey (*Petromyzon Planeri*) in great quantities in the river Frome, close to Dorchester. I had noticed two about a fortnight since, and was much amused at their proceedings: they were in a small rivulet near the County Gaol: I watched them for nearly an hour, during which time they were constantly employed in removing stones, and this evidently in their search for food. Their mode of proceeding was to attach themselves to the stone, and then by wriggling their bodies to detach it from its bed, and then, making a spring for about eighteen inches, they dropped the stone; they never made a second dart with the same stone: on dropping the stone, they immediately returned to the spot from which they had taken it and nozzled for some time in the mud and sand, leaving me to infer they were searching for food: they certainly were not making a nest, as they never dropped two stones in the same place; they carried the stones up the stream, and appeared to drop them when the strength of the springing forward was exhausted. We thus see an admirable adaptation of the mouth of the lamprey to its habits; it doubtless feeds, exclusively, on the minute animals which are found in abundance under all the stones. —*Id.*

Gonepteryx Rhamni double-brooded.—The Rev. Mr. Hawker (Zool. 4650), in noticing the occurrence of Rhamni, adds, without further comment, the expression "double-brooded." Now, I think no one ever had more opportunities of making the acquaintance of this butterfly than I have. I have seen it on new year's day and almost every succeeding day in the year, on Christmas-day most certainly, and have taken careful note of its condition, and my conviction—my firm conviction—has been that there is but one (an autumnal) brood during the year, and I shall feel extremely obliged if Mr. Hawker will detail the particulars of the interesting and important discovery he has made. I may add, that I have spoken on the subject to Mr. Doubleday and other eminent Lepidopterists, to which title I lay no claim, and I find the discovery is as new to them as to myself.—*Edward Newman.*

PROCEEDINGS OF SOCIETIES.

ENTOMOLOGICAL SOCIETY.

April 2, 1855.—JOHN CURTIS, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'Abhandlungen der Mathematisch-Physikalischen Classe der Königlich Bayerischen Akademie der Wissenschaften,' Vol. xvii. Part 2; 'Bulletin der Königlich Akademie der Wissenschaften,' Nos. 1—52, 1853; 'Ueber das Klima von München,' von Karl Kuhn; by the Academy. 'The Literary Gazette' for March; by the Editor. 'Journal of the Society of Arts' for March; 'Catalogue of the Seventh Exhibition of Inventions;' both by the Society of Arts. 'Proceedings of the Royal Society,' Vol. vii. Nos. 9 and 10; by the Society. 'The Zoologist' for April; by the Editor. 'Proceedings of the Berwickshire Naturalist's Club,' Vol. iii. No. 5; by the Club. 'The Entomologist's Annual for 1855,' 2nd Edition; by the Editor. Hewitson's 'Exotic Butterflies,' Part 14; by W. W. Saunders, Esq. 'Entomologische Zeitung,' 1855, Nos. 1 and 2; by the Entomological Society of Stettin. Fifty-two specimens of British Lepidoptera; by H. Doubleday, Esq.

Distribution of the Society's Duplicate Insects.

The Secretary announced that the Council had determined to distribute among the Members the duplicate specimens in the Society's collection of British Coleoptera, Exotic Coleoptera and Exotic Diurnal Lepidoptera; and that, in order to give the country Members an opportunity of selection, the distribution would not take place

until after the June meeting. The Council did not make any condition of exchange, but they hoped the Members would, in return, contribute as far as they were able the desiderata to the Society's collection.

Proposed Catalogue of British Coleoptera.

The Secretary also said he was happy to announce that the offer of Dr. Gray for a Synonymic Catalogue of British Coleoptera had been accepted by our Curator, Mr. Janson, who would be glad to receive any information and assistance from his brother Coleopterists in the work he had undertaken. The first part of the Catalogue would be ready in about two months, and it was also Mr. Janson's intention eventually to print a Nomenclature of the Species, for interchange among collectors.

Exhibitions.

Mr. Foxcroft sent for exhibition specimens of several species of Lepidoptera, recently reared by him from larvæ collected in Fifeshire; a pair of each species would be given to each of his subscribers for Lepidoptera: also two specimens of Papilio Machaon, with the skins of the chrysalides from which they came: both insects and pupæ, he said in a note, presented certain constant differences of marking divisible into two kinds, of each of which he had reared males and females.

Mr. Bond exhibited a Phragmatobia lubricipeda, presenting an agglomeration of the dark spots on the costa into a continuous line, and also some other variations of marking. This specimen was reared by Mr. Foxcroft.

Mr. Stevens exhibited, from the collection of Madame Pfeiffer, a pair of the rare beetle Euchirus longimanus.

Greasiness of Insects.

Mr. Stainton exhibited two specimens of Nepticula Acetosæ, pinned last summer, which already showed signs of verdigris on the pins.

Mr. Edward Sheppard exhibited four specimens of a Donacia, two of which were mounted on gilt and two on ungilt pins. They were all pinned at the same time, four months ago, and the gilt pins exhibited no trace of verdigris, but the ungilt pins were surrounded with it.

Mr. Edwin Shepherd repeated his former remark, that after the lapse of a year or more he had found pins doubly gilt were affected by the greasiness of the insects equally with ungilt pins.

Description of a New Ornithoptera.

Mr. Stevens read a description, by Mr. Wallace, of a new butterfly taken by him on the N. W. coast of Borneo, under the name of Ornithoptera Brookiana, of which a drawing was exhibited.

Tropical Micro-Lepidoptera.

Mr. Stevens read an extract from a letter received from Mr. Wallace, in Borneo, in which he stated that he had taken about 700 Micro-Lepidoptera, among which are some extraordinary developments of palpi, &c. He finds these small moths come in abundance to a lamp, on dark, wet nights, and in the wet season he is sure he could get thousands of them.

The President read the following note:—

On the Galls produced by Cynips Quercus-petioli.

"When, at the last Meeting of the Society, I presented my observations upon various galls from the Crimea, lately published in the 'Gardener's Chronicle,' I had no opportunity of referring to the oak-galls which have been several times exhibited to the Members under different names.

"It is, however, most important that the name of the species should be determined; I therefore investigated the subject carefully, and am satisfied that I was correct in the opinion I first gave. It may be remembered that when the galls, with the fly, from Mr. Walcott, were laid before the Society by me, and also by Mr. Rich, I stated they were identical with the Cynips Quercus-petioli of Linneus, but this opinion was objected to by Mr. Newman, owing to the galls not being apparently produced from the petioles.

"On referring to Linneus's 'Fauna Suecica,' p. 387, I find he writes of Cynips Quercus-petioli, 'Habitat in Galla utrinque convexa inflata, petioli seu ramuli Quercus,' showing that the galls are not confined to one spot, and he refers to Roësel's Ins. App. t. 35, 36, which volume I had obtained of Mr. Janson at the last Meeting, in order to exhibit the excellent plate of the galls there given, together with the imago, which agrees well with the females bred by Mr. Walcott, at once identifying the galls and insects which I exhibited last November with the Cynips Quercus-petioli of Linneus, and likewise with Reaumur's fig. 7, pl. 41, vol. iii., which evidently represents the galls of the same species of Cynips.

"I would also observe that the 'Galle en pomme,' represented in the same plate by Reaumur, and formed by the Cynips Quercus-terminalis, is so totally different from the galls of the C. Quercus-petioli in the internal structure, as well as in their position on the twigs of the oak, that they must be the productions of very different species.

"Since the above memoranda were written I see Mr. Westwood has given, in the 'Gardener's Chronicle,' an Essay on the British Ink-Galls, with figures of the oak-gall and the Cynips from Devon; and I am glad to learn he intends to investigate still further the galls of commerce. It is possible they may not be found so valuable, in a commercial point of view, as they were formerly, owing to the galls being superseded by metallic ingredients in the manufacture of ink; nevertheless they may still be serviceable in furnishing a permanent dye."

Mr. Westwood said he had very recently found his specimens of the Cynips, which he had determined to be the C. Quercus-petioli so long ago that the ink with which the name was written on the label had faded.

Duration of Life in the Honey-Bee.

Read, "Observations on the Honey-Bee, in continuation of the Prize Essay of the Entomological Society for 1852;" by J. G. Desborough, Esq.

Mr. Wollaston's Collection of Madeira Insects.

Dr. Gray said it might be interesting to the Members to know that Mr. Wollaston had transferred to the British Museum his collection of Madeira Insects.—*J. W. D.*

APPENDIX

TO

THE ZOOLOGIST

FOR 1855.

ART. XXX.—*Descriptions of Two Coleopterous Insects new to the British Fauna.* By T. VERNON WOLLASTON, Esq., M.A., F.L.S.

THE following two insects appearing to be hitherto undescribed, not merely in our own country but on the Continent at large, I subjoin the accompanying brief diagnoses, which may serve to characterize them.

Family—STAPHYLINIDÆ.

Genus—HOMALOTA.

HOMALOTA CAMBRICA.

Angusto-linearis, depressa, fusco-picea, subnitida, pubescens; elytris paullo dilutioribus; pedibus pallido-testaceis; antennis gracillimis, fuscis. (*Long. corp. lin.* 1⅓.)

Narrow, linear and depressed; of a brownish piceous hue, slightly shining, and pubescent. Head roundish quadrate and very slightly narrower than the prothorax, finely and rather sparingly punctured, flattened on the forehead, and with an almost obsolete longitudinal foveolet, which vanishes posteriorly. Prothorax a little narrower than the elytra, and rather more evidently punctured than the head; subquadrate, and very slightly narrowed behind; obsoletely channeled down the disk. Elytra somewhat more diluted in colouring than the head and prothorax, and a little more pubescent. Abdomen linear, rather shining, sparingly punctured, and diluted at its extreme apex. Antennæ rather longer than the head and prothorax, fuscous, and extremely slender; their terminal joint ovate. Legs likewise slender, pale testaceous.

A very peculiar little Homalota, somewhat allied to the H. gregaria of Erichson, but smaller, narrower, more diluted in colouring, and with its legs and antennæ (especially the latter) extremely slender. It is certainly unrepresented in the Stephensian collection, and I am informed by M. Kraatz, of Berlin, that it is probably distinct from anything described in Erichson's Monograph. It would appear to be a mountain species, the only two specimens which I have seen having been captured by myself in North Wales (I believe at Bettws-y-coed) during July.

Family—LATHRIDIADÆ.

Genus—CORTICARIA.

CORTICARIA BOREALIS, *Woll.*

Subovato-cylindrica, rufo-ferruginea, pubescens; capite prothoraceque profunde punctatis, illo lato oculis magnis exstantibus, hoc ad latera rotundato et valde crenulato; elytris profunde striato-punctatis, singulo stria fortiore suturali ultra medium impresso, sutura scutelloque sæpius nigrescentibus. (*Long. corp. lin.* 1—1⅛.)

Somewhat ovate-cylindrical, being convex, but a little expanded behind the middle; reddish ferruginous, slightly shining, and more or less clothed (especially on the elytra) with a pale rigid pubescence. Head and prothorax deeply punctured; the former very wide, and with the eyes large and prominent; the latter convex, rounded at the sides, and with its extreme lateral edges powerfully crenulated. Elytra coarsely striate-punctate, each of them having a more deeply impressed stria alongside the suture, behind the middle; the suture (particularly behind the middle), and occasionally the lateral margins also, together with the scutellum, more or less black. Antennæ and legs a little paler than the rest of the surface.

The above description has been compiled from three specimens of a large, and apparently new, Corticaria, in the possession of G. R. Waterhouse, Esq., of the British Museum, which were captured many years ago by Charles Darwin, Esq., though in what locality I am unable to ascertain, I possess, however, two examples, taken by Mr. Hardy on the coast of Durham, and (if I mistake not) registered as the C. crenulata in his enumeration of the insects of that county and of Northumberland. It seems to be undescribed in Mannerheim's Monograph of the genus, and unnoticed in the 'Catalogus Coleopterorum Europæ,' published at Berlin in 1852. I may add, that on the return of M. Motschoulsky to St. Petersburgh, after his visit to England in 1851, I took the opportunity of sending it for comparison with his large assortment of Mannerheim's types, with none of which it would appear to agree. It is a very singular and well-marked species, its cylindrical outline, wide head and prominent eyes, in conjunction with its usually darkened suture (which has a deeply impressed stria

on either side of it, behind the middle) and scutellum, giving it a character which it is impossible, even *prima facie*, to mistake.

T. V. WOLLASTON.

ART. XXXI.—*Revision of the Characters of Deretaphrus and Descriptions of Two New Species.* By T. VERNON WOLLASTON, Esq., M.A., F.L.S., and EDWARD NEWMAN.

Order—COLEOPTERA.

Section—NECROPHAGA.

Family—COLYDIADÆ.

Genus—DERETAPHRUS, *Newm.*

Corpus angusto-elongatum, parallelum, subcylindricum: prothorace subcordato, angulis anticis deorsum leviter productis: mesothorace cylindrico, superne subobservando, scutello rotundato: elytris (præsertim circa humeros) longitudinaliter costalis, necnon profunde sculpturatis: abdomine e segmentis ventralibus sex composito. Antennæ prothorace breviores crassæ, articulo 1mo valde robusto subgloboso intus (ut in gen. Bothrideres) inflato, 2do et 3tio vix brevioribus (illo ad basin flexuoso), inde ad 8vum transversis brevibus (longitudine latitudineque vix crescentibus), reliquis poculiformibus, clavam intus leviter triserrato-ampliatam efficientibus), 9no et 10mo latis, ultimo minore angustiore ad apicem valde truncato). Labrum sub fronte fere opertum, submembranaceum, transversum, ad latera necnon ad angulos anticos rotundatum, apice fere integrum sed pilis longissimis introrsum vergentibus densissime ciliatum. Mandibulæ magnæ corneæ robustissimæ crassæ glabræ, ad apicem obtusæ sed fortiter bidentatæ, margine interno subintegro et membranâ haud instructo, basin versus externam profunde sinuatæ. Maxillæ bilobæ, valde pubescentes: lobo externo latiusculo; interno huic angustiore et paullo breviore, ad apicem ipsum minutissime uncinato. Palpi subfiliformes, articulo ultimo subfusiformi elongato. Mentum amplissimum, corneum, transversum (antice versus utrumque latus profunde fissum). Ligula parva angustissima, valde pilosa, ad apicem tenuissime membranacea rotundata ac leviter dilatata. Pedes validi: tibiis compressis et apicem versus dilatatis, ad apicem externum in spinam exstantem productis, ad internum calcariis duobus inæqualibus (nisi fallor mobilibus, necnon ad basin articuli tarsorum primi affixis) armatis (calcari superiore in anticis, inferiore in posterioribus, majore et leviter incurvo):

tarsis 4-articulatis, articulis 1mo, 2do et 3tio paulatim vix decrescentibus, ultimo majore clavato, unguiculis simplicibus munito.

Typus: Deretaphrus fossus, *Newm.* (ex Australiâ).

Regarding the affinities of this genus there cannot, I think, be the slightest question, retaining as it does all the characteristics of the Colydiadæ, even though it presents, at the same time, many anomalies of a minor kind which may serve to connect it in some measure with other departments also far removed. Thus, in its external contour (so strongly suggestive of Colydium proper) and tetramerous feet it is precisely in accordance with the normal members of that family; in the inflation of the basal joint of its antennæ it is the exact counterpart of Bothrideres; and in the construction of its tibiæ it has much in common with the Lycti. From the Trogositidæ, to which at first sight it might be supposed perhaps to be allied, it is altogether separated by its four-jointed tarsi and the full development of its inner maxillary lobe; whilst its general facies and subcylindrical body are more indicative of a lignivorous mode of life than of the bone- and skin-infesting tendency which is so strongly displayed in the representatives of that group. The construction of its thickened and greatly abbreviated antennæ, with the curious foreshortening of their terminal articulation, is very peculiar, calling to mind a good deal what we observe in Thorictus, with which genus, moreover (although in other respects by no means related to it), in the form of its robust and glabrous mandibles, it, singularly enough, almost coincides. Its tibial spurs are moulded on a very remarkable type, being of unequal dimensions, and the larger of the two (which in the anterior pair of legs is the front, and in the posterior four the hinder, one) considerably developed, and subcompressed, somewhat after the manner of those of Melöe and other Heteromera. I think it far from unlikely also that, like them (although I have not been able to satisfy myself of this from positive observation, having been unwilling to destroy the single specimen from which the above generic diagnosis has been compiled), they may be articulated on to the basal joint of the foot, and therefore of a moveable nature, rather than fixed appendages of the tibia itself.

Upon the whole, however, there cannot, I imagine, be much doubt that Deretaphrus is rightly referred to the Colydiadæ; and I should be inclined to suspect that, when placed between Colydium proper and Bothrideres, it will be found nearest to those groups with which it has the most evident affinity.

It may perhaps be useful to mention, that the main points of structure in which Deretaphrus recedes from Colydium are in the excessive robustness of its antennæ and the proportions of their joints, particularly in the inflation of the basal, and in the smallness and truncature of the ultimate, one; in its more concealed upper lip; in its larger, robuster and more obtuse mandibles, which are deeply sinuated towards their outer base, with their apex merely bidentate, and their internal margin almost entire and free from membrane; in the more distinctly uncinated inner lobe of its maxillæ; in its larger, differently shaped and more corneous mentum; and in its smaller, narrower and more pubescent ligula.

T. V. WOLLASTON.

THE genus Deretaphrus was first characterized by myself at p. 403 of 'The Entomologist' for October, 1842, and four species were described, all of them Australian: no critical observations are appended, but it is placed as an ally of the Ptinidæ.

The second notice of the genus, obligingly pointed out to me by Mr. Janson, is at p. 287 of the 'Naturgischichte der Insecten Deutschlands,' from the pen of that great Coleopterist, Erichson, who (agreeing with Mr. Wollaston) places it in his family Colydii, thus characterized:—"Antennæ rectæ, clavatæ vel capitulatæ. Coxæ anteriores globosæ, posticæ transversales semicylindricæ. Tarsi 4-articulati. Abdomen segmentis ventralibus 5, anterioribus 3 vel 4 immobilibus." Erichson divides the family into seven groups, of which the third is thus distinguished:—"Palpi filiformes. Pedes postici distantes. Abdomen segmento ventrali primo reliquis majore." In this group the genera are three in number, and are thus tabulated:—

Mouth beneath	covered		DERETAPHRUS.
	free: anterior legs	approximate ...	SOSYLUS.
		distant ...	BOTHRIDERES.

The third of these genera only is German; the others are therefore only briefly alluded to. Deretaphrus is thus noticed:—"Deretaphrus of Newman is a New Holland form of more attenuated and more cylindrical shape than Bothrideres, and also differs from this genus partly in having the club of the antennæ triarticulate, and partly in having the mouth entirely covered beneath by a flat continuation of the margin of the throat: the pits also in which the anterior legs articulate are divided from each other by a narrow partition only; and the intermediate legs likewise are not widely separated. The thorax has a central longitudinal furrow. Of the four species given by Newman, *loc. cit.*, only the first, D. fossus, *Newm.*, from which the generic character is drawn up, and perhaps also the second, D. puteus, *Newm.*, which the royal collection of this place does not possess, are to be referred to Deretaphrus; the other two appear to belong to Bothrideres: on the other hand, there are in our collection three nondescript species of Deretaphrus."

The third notice of the genus occurs at p. 222 of the 'Linnæa Entomologica,' in a paper intituled "Beiträge sur Insecten fauna von Adelaide, von E. F. Germar," published in 1848. The type species is the same, but unfortunately both genus and species are renamed as new, no mention whatever being made of the two prior descriptions: the characters, however, are drawn up with Professor Germar's usual skill, and the location of the insect in the family Colydii is confirmed:—"Fam.—Colydii. Genus—Sigerpes, *Germ.* Antennæ mediocres, 11-articulatæ, articulo primo incrassato, sequentibus brevibus, ultimis tribus distincte crassioribus, transversis, ultimo truncato. Palpi breves, filiformes. Oculi parvi, parum prominuli. Caput postice constrictum, collo exserto. Pedes breviusculi, omnes basi distantes; tarsis 4-articulatis, articulis simplicibus. Genus Pycnomeris affine, sed clava antennarum 3-articulata, collo exserto, et thorace elongato, postice valde angustato distinctum."

The fourth and last notice is that with which Mr. Wollaston has so kindly furnished me, and which is printed verbatim above. The characters drawn up from a single specimen of Deretaphrus fossus of course have a tendency to restrict the limits of the genus, and thus to corroborate the previously expressed opinion of Erichson that certain of the species should be eliminated. My own opinion, not to be weighed in the balance against that of Erichson and Wollaston, is rather the extension than the restriction of generic divisions on account of the encumbrance to Science caused by the multiplicity of names; but I cannot conclude this remark without inviting the attention of entomologists to the profound knowledge and genius of Erichson, who, from descriptions of a few words each, could pronounce unhesitatingly an opinion on the affinities of insects, which should be confirmed by the independent testimony of Professor Germar and the careful dissections and elaborate investigations of Mr. Wollaston.

DERETAPHRUS WOLLASTONI.

Niger, prothorace confertim puncto, punctis confluentibus, elytris argute carinatis interstitiis profunde ac striatim punctis. (Corp. long. ·47 unc. lat. ·14 unc.)

Black; head coarsely punctured; prothorax deeply and coarsely punctured, the punctures confluent; at its base, and extending nearly to the centre of the disk, is an obscurely defined sulciform median depression, and parallel with this, on each margin, is a ridge or keel of corresponding length, which does not follow the curved margin of the prothorax where it widens, but is continued in a direct line towards the anterior margin, ceasing, like the median depression, about half-way between the anterior and posterior margins of the prothorax: elytra carinated, the keels (nine in number on each elytron) sharply produced and strongly pronounced; the first next the suture is the least elevated; each interstice is impressed with a series of deep punctures: the under surface of the entire insect is deeply and regularly punctured.

This species somewhat resembles Deretaphrus fossus in size, habit and colour; but the sculpture, as described above, is perfectly distinct. It forms part of a rich collection made in the vicinity of Moreton Bay, North Australia, by Mr. James

Gibbon, to whose courtesy I am indebted for the opportunity of examining this and many other most interesting novelties from the same locality. I have named this insect in honour of Mr. Wollaston, whose profound knowledge as a Coleopterist is only equalled by his kindness in imparting it.

DERETAPHRUS ERICHSONI.

Rufo-piceus; capite puncto, punctis minutis sparsis distinctis; prothorace puncto, punctis majoribus crebrioribus, medio longitudinaliter vage impresso; elytris carinatis, carinis postice interruptis in tuberculos salientes divisis, interstitiis profundis serie unica punctorum magnorum impressis. (Corp. long. ·47 unc. lat. ·14 unc.)

Pitchy red, approaching to black towards the apex of the elytra: head impressed with a small epicranial fovea, and there is another more conspicuous immediately adjoining the epicranial margin of each eye: the entire epicranium is minutely punctured: prothorax punctured more coarsely and regularly than the head: elytra carinated, the carinæ interrupted towards the apex, and broken, as it were, into salient, irregular, and sometimes rather acute tubercles: under surface of the insect uniformly punctured, pitchy red, shining; coxæ, together with the space immediately surrounding them, and apex of abdomen, darker: legs pitchy black, with redder femora; exterior margin of tarsi strongly serrated.

Habitat: Adelaide, South Australia. There are two specimens, from the collection of Mr. S. Stevens, in the cabinet of the British Museum. I have named this in honour of the late Professor Erichson, whose memory I revere as that of one of the greatest Coleopterists the world has produced.

The described species of Deretaphrus, exclusive of those which Erichson proposed to remove to the genus Bothrideres, are now four in number: 1. D. fossus, *Newman, Entom.* 403, synonymous with Sigerpes piceus of Germar. 2. D. Wollastoni, *Newman*, described above. 3. D. Erichsoni, *Newman*, described above. 4. D. puteus, *Newman, Entom.* 404. They are all peculiar to Australia, feeding under the bark of trees, principally Eucalyptus.

EDWARD NEWMAN.

ART. XXXII.—*Characters and some Account of the Economy of a supposed New Species of Australian Bombyx.* By EDWARD NEWMAN.

BOMBYX (DORATIFERA?) OXLEYI.

Fœm. *Castaneo-fusca; alarum limbo anticarum lato albido, posticarum ciliis tantum pallidis; abdomen subtus apice densissime lanugine fusco vestitum. (Corp. long. 1·6 unc. alar. dilat. ·6 unc.)*

Female.—Palpi small, short, clothed with pale scales, their apices bent downwards: maxillæ not observed, probably wanting; scales of the face brown, of the epicranium bright ferruginous; at the base of each antenna is a little erect tuft of brown scales; the apices of these tufts are connivent, approaching each other above the epicranium; the antennæ are moderately long, quite simple, and pale brown: scales on thorax, immediately behind the head, long, loose, and bright ferruginous, the rest brown; scales on dorsal segments of abdomen short, closely appressed, reddish brown, on the sides and beneath long, woolly, and dark brown, forming a large and dense apical mass. *Above*, anterior wings reddish brown, the oblique exterior margin with a broad pale band; the discoidal dark brown portion of the wing is somewhat more deeply coloured at the base, along the costa, and at the upper inner margin of the pale band: the wing is marked throughout with slightly undulated oblique parallel lines, which seem rather to result from an undulating character in the membrane of the wing than from diversity of colour: posterior wings uniform concolorous brown, the cilia alone pale. *Beneath* brown; the tips of the anterior wings, an obscure stigma and the cilia paler.

This moth is nearly allied to the Bombyx vulnerans of Lewin's 'Lepidoptera of New South Wales,' pl. 4,—Doratifera vulnerans of Westwood, described at p. 181 of Duncan's 'Exotic Moths,' which forms No. 7 of 'The Naturalist's Library.' The larva of that species is "of very singular aspect, broad, thick and massive, with four reddish protuberances on the anterior part of the body and four behind. These knobs it has the power of opening at pleasure, and darting out eight rays or bunches of stings of a yellow colour: * * * the wound inflicted by these little fascicles of stings is described by Lewin as very painful and venomous, and it darts them forth whenever it is alarmed by the motion of anything approaching." The cocoon of B. Oxleyi is remarkably small for the size of the moth, being scarcely larger than a good-sized pea: it is of an oval shape, extremely compact, and not to be broken without a sharp blow; it is composed of a glutinous substance secreted by the larva, and mingled with highly comminuted particles of the rind of a twig of some species of Eucalyptus, to the denuded wood of which it is firmly attached, the caterpillar evidently laying bare a portion of the twig with its mandibles and employing the fragments in the fabrication of its cocoon, the smaller end of which is provided with an operculum or lid, which separates only on the imago arriving at maturity, and leaves a smooth-margined, perfectly circular aperture, through which the moth escapes. I am indebted to Mr. Oxley for the opportunity of describing both the moth and the cocoon, and have much pleasure in dedicating the species to that zealous entomologist. I do not find any characters of the genus Doratifera.

EDWARD NEWMAN.

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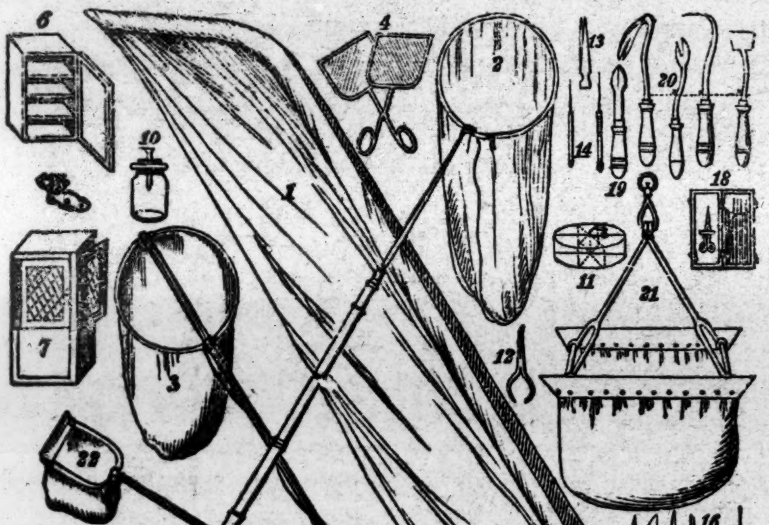

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TO CORRESPONDENTS.

I extremely regret to be obliged to defer, until June, the publication of Dr. Knox's invaluable Paper "On the Food of certain Gregarious Fishes," the reading of which excited such interest at the Linnean Society; also Mr. Smith's ancient authority for the fact of the Toad being an enemy to the Hive-Bee, Mr. Guyon's description of a new British Beetle, and a number of shorter but valuable communications. I am happy in having redeemed my promise, of making up by 24 additional pages the space somewhat irregularly occupied by my Address to the Entomological Society.—Edward Newman.

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